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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/708,217

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Robert Geary

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ATLANTA, GA 30309-3521

EXAMINER

PATEL, NIHIR B

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/708,217	<b>Applicant(s)</b> GEARY, ROBERT	
	<b>Examiner</b> NIHIR PATEL	<b>Art Unit</b> 3772	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 July 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-11 and 17-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-4, 7 and 11 is/are allowed.
- 6) ☒ Claim(s) 5, 6, 8-10, 17-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed on July 6<sup>th</sup>, 2010 have been fully considered but they are not persuasive. In reference to claims 9 and 24, the applicant's argument that Curry does not teach, suggest or make obvious at least the feature of increasing a level of oxygen concentration within a habitable area of the aircraft to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The combination of oxygen partial pressure 17 and oxygen control unit 41 is capable of increasing a level of oxygen concentration within a habitable area of the aircraft to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure as the oxygen control unit 41 controls the operation of an onboard oxygen generating system.

In reference to claims 5, the applicant argues that neither Curry nor Chrome teach the feature of varying the oxygen flow and the nitrogen flow into the occupant cabin as recited in the amended claim 5. The examiner disagrees with the applicant's argument. First the examiner would like to point out that the combination of oxygen partial pressure 17 and oxygen control unit 41 controls the amount of oxygen being delivered to the occupant cabin as col. 4 lines 1-5 and lines 15-20 recites. In reference to varying nitrogen flow in the occupant cabin, the examiner would like to point out that air comprises nitrogen and since the applicant hasn't recited that its pure nitrogen, the combination of cabin air pressure sensor 21 and air control unit

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43 which controls the amount of fresh air being delivered, it is obvious that it also controls the amount of nitrogen being delivered into the occupant cabin.

In reference to claims 6, the applicant argues that neither Curry nor Chrome teach the feature of introducing the nitrogen rich air into the habitable area as recited in amended claim 6. The examiner disagrees with the applicant's argument. The applicant's definition of habitable area is broad and the cargo bay is considered habitable area since it is occupied by passengers and pets.

### ***Response to Amendment***

2. The examiner acknowledges the amendment filed on July 6<sup>th</sup>, 2010. The amendment comprises amending claims 2-11, 17-20, 22 and 24-27; adding new claims 29 and 30; and cancelling claims 1 and 12-16.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims **8-10, 17-20 and 24-30** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims recite subject matter i.e., "to increase a level of oxygen concentration within a habitable area of the aircraft to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure" which was not described in

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the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, has possession of the claimed invention.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims **9, 24, 26 and 28** are rejected under 35 U.S.C. 102(b) as being anticipated by Curry et al. (US 5,791,982).

7. **As to claim 9**, Curry teaches an apparatus that comprises:

separating oxygen from ambient air to establish a high concentration oxygen supply (see **col. 3 lines 40-50**);

dispensing high concentration oxygen from the high concentration oxygen supply to an occupant cabin of the aircraft to increase a level of oxygen concentration within the occupant cabin to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure (**the combination of oxygen partial pressure 17 and oxygen control unit 41 is capable of increasing a level of oxygen concentration within a habitable area of the aircraft to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure as the oxygen control unit 41 controls the operation of an onboard oxygen generating system**).

8. **As to claim 24**, Curry teaches an apparatus that comprises:

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a gas separation unit to separate ambient air into a nitrogen rich flow and an oxygen rich flow **(see col. 3 lines 40-50)**;

a plurality of sensors monitoring at least one condition within at least one region of an aircraft **(see col. 2 lines 66-67 and col. 3 lines 1-5)**;

a central control unit **41** controlling a dispensation of the nitrogen rich flow and the oxygen rich flow based in part on an output of the plurality of sensors **(see col. 4 lines 10-20)** to increase a level of oxygen concentration within a habitable area of the aircraft to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure **(the combination of oxygen partial pressure 17 and oxygen control unit 41 is capable of increasing a level of oxygen concentration within a habitable area of the aircraft to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure as the oxygen control unit 41 controls the operation of an onboard oxygen generating system)**.

9. **As to claim 26**, Curry teaches an apparatus wherein the central control unit causes the dispensation of the oxygen rich flow into the habitable area if a higher oxygen concentration in the habitable area is desired **(see col. 4 lines 10-20)**.

10. **As to claim 28**, Curry teaches an apparatus wherein the habitable area comprises at least one of a passenger cabin, a cockpit, a lavatory, a galley and a vestibule **(see col. 4 lines 10-15)**.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims **5, 6 and 21-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Curry et al. (US 5,791,982) in view of Crome (US 6,997,970).

14. **As to claim 5**, Curry substantially discloses the method steps of dispensing an oxygen flow from a high-concentration oxygen supply to an occupant cabin of the aircraft to increase the level of oxygen concentration within the cabin (**see col. 4 lines 10-20**); and varying the oxygen flow and the nitrogen flow into the occupant cabin based in part on a detected condition in the aircraft (**the combination of oxygen partial pressure 17 and oxygen control unit 41 controls the amount of oxygen being delivered to the occupant cabin as col. 4 lines 1-5 and lines 15-20 recites and air comprises nitrogen and since the applicant hasn't recited that its pure nitrogen, the combination of cabin air pressure sensor 21 and air control unit 43 which controls the amount of fresh air being delivered it is obvious that it also controls the amount of nitrogen being delivered into the occupant cabin**) but does not disclose dispensing a nitrogen flow from a high concentration nitrogen supply to a fire-susceptible, internal non-habitable region of the aircraft to decrease the capability for the atmosphere therein to support combustion. Crome discloses a method step of dispensing a nitrogen flow from a high-

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concentration nitrogen supply to a fire-susceptible, internal non-habitable Legion outside a fuel tank of the aircraft to decrease the capability for the atmosphere therein to support combustion **(see col. 6 lines 60-67)**. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Curry's invention by providing a method step of dispensing a nitrogen flow from a high-concentration nitrogen supply to a fire-susceptible, internal non-habitable Legion outside a fuel tank of the aircraft to decrease the capability for the atmosphere therein to support combustion as taught by Crome so as to reduce the possibility of explosive conditions in the fuel tank and to help extinguish fires in the cargo bay.

15. As to **claims 6, 22 and 23**, Curry substantially discloses the method steps of establishing a supply of nitrogen rich air by separating nitrogen from ambient air onboard the aircraft **(see col. 3 lines 40-50)** but does not disclose a method step of storing the supply of nitrogen rich air in an unoccupied area and introducing the nitrogen rich air stored in the unoccupied area into the an occupied area. Crome discloses an apparatus that does provide a method step of storing the supply of nitrogen rich air in an unoccupied area **130 and 140 (see col. 6 lines 60-65; it is obvious to one having ordinary skill of the art that the nitrogen rich air be stored in an unoccupied area away from passengers in order to prevent it from being contacted with passengers)** and introducing the nitrogen rich air stored in the unoccupied area into the an occupied area **330 (see col. 6 lines 60-67; the applicant's definition of habitable area is broad and the cargo bay can be considered habitable area since it is occupied by passengers pets)**. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Curry's invention by providing a method step of storing the supply of nitrogen rich air in an unoccupied area and introducing the nitrogen rich air stored in



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the unoccupied area into the an occupied area so as to reduce the possibility of explosive conditions in the fuel tank and to help extinguish fires in the cargo bay.

16. **As to claim 21**, Curry substantially discloses a method step wherein the detected condition is at least one of a partial pressure of oxygen values, flight parameters, aircraft configuration, and smoke/fire warning status (**see col. 4 lines 10-20**).

*Allowable Subject Matter*

17. Claims **2-4, 7 and 11** are allowed. In reference to claim 2, the prior art does not teach a method of directing oxygen from the high concentration oxygen supply overboard if a lower atmospheric oxygen concentration is required in combination with other recited limitations. In reference to claims 3 and 11, the prior art does not teach adding nitrogen from the high-concentration nitrogen supply into the habitable region to dilute the oxygen concentration if the reduced oxygen concentration is required in combination with other recited limitations. In reference to claim 4, the prior art does not teach a method step of continuously detecting an absolute pressure and an oxygen percentage in the occupant cabin and the fire susceptible non habitable areas of the aircraft as well as computing a partial pressure of oxygen within the occupant cabin and the fire susceptible, non habitable areas of the aircraft based upon the absolute pressure and the oxygen percentage in combination with other recited limitations. In reference to claim 7, the prior art does not teach a method step of introducing the nitrogen rich air stored in the non habitable area of the aircraft into the habitable area, in conjunction with directing the oxygen rich air overboard if a fire is detected onboard the aircraft in combination with other recited limitations.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIHIR PATEL whose telephone number is (571)272-4803. The examiner can normally be reached on 7:30 to 4:30 every other Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia Bianco can be reached on (571) 272-4940. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nihir Patel/

Examiner, Art Unit 3772

/Patricia Bianco/

Supervisory Patent Examiner, Art Unit 3772